



TRANSFER OF TECHNOLOGY MODEL

**LAMINATED BAMBOO FURNITURE
MANUFACTURING UNIT**

INTERNATIONAL NETWORK FOR BAMBOO AND RATTAN

Why bamboo?

- **Bamboos** grow more rapidly than trees and start to **yield within three or four years** of planting.
- **Plantation** establishment requires **minimal capital investment** and builds upon the inherent plant-cultivation skills of local farmers and foresters.
- **Bamboos** can be **harvested annually** and non-destructively.
- **Bamboos** are excellent for **rejuvenating degraded lands** and protecting against soil erosion.
- **Bamboos** may easily be **intercropped** with shallow-rooted crops.
- As well as the culms, **all other parts** of the bamboo plant **can be used in rural livelihoods** - shoots for food, leaves for fodder, and branches for items such as brooms and for firewood.

What is laminated bamboo furniture?

- **Laminated bamboo furniture** is relatively new type of furniture similar to laminated wood furniture.
- Due to the way it is produced, a **huge variety** of shapes can be formed for the component parts, and a wide range of furniture produced.
- Bamboo can be used to produce a wide range of laminated furniture such as **chairs, sofas, bookshelves, cabinets and tables.**
- **Laminated bamboo furniture** does not retain the characteristic shapes of the bamboo raw material from which it is produced and in this way offers more versatility to designers.



How is laminated bamboo furniture produced?



1. Bamboos are cross-cut into sections.



2. Sections are split into strips.



3. Strips are coated with glue. Straight units are formed by hot-pressing strips together.



4. Curved units are formed by setting coated strips in shaping moulds.



5. The moulded units are assembled into furniture.



6. The furniture may be painted, varnished or otherwise surface decorated prior to sale.

Main development attributes of a laminated bamboo furniture unit

- **Reduces** dependence on timber resources and thereby increases environmental protection and conservation.
- **Permits** rehabilitation of degraded lands through increased areas of bamboo plantations.
- **Creates** income-generating opportunities for bamboo growers who will supply the unit, and employment for unskilled, semi-skilled and skilled staff at the unit.
- **Increases** community welfare if established as a community enterprise.

Photo: Knot removing and planing machine



Some salient facts

- **Laminated bamboo furniture** is a modern invention but has already become popular in China and Japan.
- A wide range of **surface finishes** can be achieved.
- The **mechanical properties** of bamboo wood are better than those of timber for laminated furniture, and the bamboo furniture is highly durable.
- Laminated bamboo furniture can be **designed** into modern, ergonomic shapes.
- High quality laminated bamboo furniture can be a valuable **export** commodity.
- Continued **innovation** and **development** of new products is necessary to promote and maintain market presence. Good access to market information is vital.



Photo: Curing
moulded component in a jig

Requirements for success

- Sustained **supply** of bamboos suitable for weaving.
- A secure **labour** force.
- **Market information** and marketing links.
- Start up **capital**.
- A **business plan**.
- A **design team** to innovate new styles of furniture and new products

Photo: Hot press used to form straight components



Financial aspects of a laminated bamboo furniture unit

(based on information from a unit in Anji, China)

START UP COSTS (US Dollars)

• Cross cutting machine	\$250
• Rough planer	\$3400
• Boiler	\$3600
• Colouring tank	\$2400
• Drying kiln	\$3600
• Precision planer	\$3800
• Spindle moulder	\$1575
• Wide belt sander	\$3000
• Other tools and machines	\$13,500

TOTAL	<u>\$35, 125</u>
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COST OF PRODUCING A SOFA SET

• Bamboo culms and glue	\$78
• Water and electricity	\$11
• Finishes	\$27
• Salaries	\$64
• Cutting knives	\$4
• Packaging	\$3
• Other	\$8

TOTAL	<u>\$195</u>
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RETAIL PRICE	\$315
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<u>PROFIT PER SET</u>	<u>\$120</u>
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For further information

See

TOTEMs

Bamboo splitting and slivering TOTEM

Rattan furniture manufacturing unit TOTEM

Websites

INBAR: www.inbar.int

Nanjing Forestry University: www.njfu.edu.cn

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